Remarks

Claims 2, 4 and 6 are pending herein. Claims 4 and 6 have been withdrawn as being directed to a non-elected invention. By this Amendment, claim 7 has been canceled and its contents incorporated into claim 2. Claims 1, 3 and 5 were canceled previously.

In the Office Action, claims 2 and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,506,822 to Ichiroku et al. ("Ichiroku") in view of U.S. Patent No. 6,310,120 to Shiobara et al. ("Shiobara '120") and U.S. Patent No. 5,362,775 to Shintai et al. ("Shintai"); and claims 2 and 7 are further rejected under §103(a) as being unpatentable over U.S. Patent No. 5,049,596 to Fujimoto et al. ("Fujimoto") in view of Shiobara '120, Shintai and Shiobara '901.

In view of the amendments and remarks herein, Applicant respectfully requests reconsideration and withdrawal of the rejections set forth in the Office Action.

I. Rejection of Claims 2 and 7 Based on Ichiroku in view of Shiobara '120 and Shintai

As noted above, claims 2 and 7 are rejected under §103(a) as being unpatentable over Ichiroku in view of Shiobara '120 and Shintai.

Claim 7 has been canceled and its contents incorporated into claim 2. Thus, claim 2 now recites that the claimed epoxy resin composition contains spherical alumina in the amount of from 85% to 92% by weight based on the total weight of the resin composition.

The Office Action cites Shintai for teaching the use of spherical alumina at col. 11, lines 22-26, which states that:

> [n]ext, in the present invention, alumina is mixed as an inorganic filler to impart a low expansion characteristic and a high heat conduction. The form of the alumina is not particularly limited, but one of a spherical or close to spherical shape is preferable.

Regarding the amount of alumina to be used therein, Shintai teaches that the alumina should constitute at least 30 percent by weight of the inorganic filler (col. 11, lines 36-38), and that the composition as a whole should contain at least 60 percent by weight of the inorganic filler (col. 11, lines 40-42). Thus, the Shintai composition contains a minimum of 18% by weight (i.e., 30% of 60%) of alumina. Shintai does not teach an upper limit to the amount of

alumina, and does not teach the particular weight range of spherical alumina recited in amended claim 2 (i.e., from 85% to 92% by weight).

In the Amendment filed on November 21, 2006, Applicant discussed Example 2 and Comparative Example 6, which are set forth in the specification, for showing the significance of using spherical alumina (Example 2) instead of spherical silica (Comparative Example 6). According to the Office Action:

> [t]he comparison between Example 2 (specification, page 15, Table 1) and Comparative Example 6 (page 16, Table 2) addressing the criticality of the claimed spherical alumina over spherical silica is not commensurate in scope with the claims. ***The testing of a single amount of 90% by weight does not establish the criticality of a quantity of as low as 85% by weight denoted in new claim 7.*** **[emphasis added]**

Applicant submits herewith a Declaration under 37 CFR 1.132 ("the Declaration"), describing five additional experiments (referred to herein and in the Declaration as "Additional Experiments 1-5") conducted by Applicant relative to the amount of spherical alumina. The experiments show the criticality of the claimed weight range for spherical alumina.

In the Declaration, Additional Experiments 1-3 respectively used 90.0, 86.0 and 91.0 parts by weight of spherical alumina per 100 parts by weight of total composition. These amounts are within the 85% to 92% by weight range of spherical alumina recited in amended claim 2. Additional Experiments 4 and 5 used 82.0 and 95.0 parts by weight, respectively, of spherical alumina per 100 parts by weight of total composition. These amounts are outside the 85% to 92% by weight range of spherical alumina recited in claim 2.

As shown in Table I of the Declaration (page 3), the compositions prepared in Additional Experiments 1-3, which used an amount of spherical alumina within the weight range set forth in claim 2, had excellent thermal conductivity, warpage of package, length of flash, temperature cycle property, and soldering resistance. On the other hand, the composition prepared in Additional Experiment 4, which used spherical alumina in an amount outside and lower than the range recited in claim 2, had poor thermal conductivity, warpage of package, length of flash, temperature cycle property, and soldering resistance. The composition prepared in Additional Experiment 5, which used an amount of spherical alumina outside and higher than the range set

forth in claim 2, had good thermal conductivity but its flowability (spiral flow) was so poor that warpage of package, length of flash, temperature cycle property and soldering resistance could not be evaluated because the composition could not be charged into the mold.

Applicant respectfully submits that the data presented in the Declaration show that the claimed weight range of spherical alumina is critical to the thermal conductivity, warpage of package, length of flash, temperature cycle property, and soldering resistance of the claimed epoxy resin composition. Applicant further submits that such data is unexpected over the prior art cited in the Office Action.

For at least the foregoing reasons, Applicant respectfully submits that amended claim 2 would not have been obvious over Ichiroku in view of Shiobara '120 and Shintai.

II. Rejection of Claims 2 and 7 Based on Fujimoto in view of Shiobara '120, Shintai and Shiobara '901

Claims 2 and 7 are further rejected under §103(a) as being unpatentable over Fujimoto in view of Shiobara '120, Shintai and Shiobara '901.

Applicant submits that amended claim 2 would not have been obvious over Fujimoto in view of Shiobara '120, Shintai and Shiobara '901 for the same reason claim 2 would not have been obvious over Ichiroku in view of Shiobara '120 and Shintai. None of the references teaches or suggests the specific weight range of spherical alumina recited in amended claim 2, and such weight range is critical to certain properties of the composition, as indicated by the data set forth in the attached Declaration. The data shown in the Declaration is unexpected over the prior art cited in the Office Action.

III. Conclusion

In view of the amendments and remarks herein, Applicant respectfully requests that the rejections be withdrawn, and that claim 2 be allowed.

If any additional fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033036M073.

Respectfully submitted,
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Enclosures: (1) Request for Continued Examination
(2) Check for $790
(3) Declaration under 37 CFR 1.132

MAM/MM/cj